

**Amendment to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (withdrawn): A method of determining vulnerable plaque in a cardiovascular lumen, comprising:  
inserting a guide member into the cardiovascular lumen, the guide member including a temperature sensor and a distance sensor;  
measuring a cardiovascular wall temperature with the temperature sensor;  
determining a distance from the temperature sensor to the cardiovascular wall with the distance sensor;  
adjusting the cardiovascular wall temperature measurement based on the distance determination; and  
determining the vulnerable plaque based on the adjusted cardiovascular wall temperature measurement.

Claim 2 (withdrawn): The method of claim 1 wherein the guide member is a catheter.

Claim 3 (withdrawn): The method of claim 1 wherein the guide member is a guidewire.

Claim 4 (withdrawn): The method of claim 1 wherein the temperature sensor comprises a resistive temperature device.

Claim 5 (withdrawn): The method of claim 1 wherein the temperature sensor comprises a thermocouple or a thermopile.

Claim 6 (withdrawn): The method of claim 1 wherein the temperature sensor comprises an infrared detector.

Claim 7 (withdrawn): The method of claim 6 wherein the infrared detector has an optical passband corresponding to a region of transparency through bodily fluid within the cardiovascular lumen.

Claim 8 (withdrawn): The method of claim 7 wherein a wavelength within the region of transparency ranges between 3.7 microns and 4.3 microns or between 4.6 microns and 5.4 microns.

Claim 9 (withdrawn): The method of claim 1 wherein the distance sensor comprises an optical sensor.

Claim 10 (withdrawn): The method of claim 1 wherein the distance sensor comprises an ultrasonic transducer.

Claim 11 (withdrawn): The method of claim 1 further comprising:  
determining a baseline temperature of the cardiovascular lumen wall based on a plurality of adjusted cardiovascular wall temperature measurements;  
comparing each adjusted cardiovascular wall temperature measurement to the baseline temperature; and  
determining the vulnerable plaque when the adjusted cardiovascular wall temperature measurement is above the baseline temperature by at least a predetermined threshold.

Claim 12 (withdrawn): The method of claim 1 further comprising:  
measuring a fluid flow rate proximate the temperature sensor and the distance sensor with a flow sensor coupled to the guide member; and  
adjusting the cardiovascular wall temperature measurement based on the fluid flow rate measurement.

Claim 13 (withdrawn): The method of claim 1 further comprising:  
applying a therapy for the vulnerable plaque.

Claim 14 (withdrawn): The method of claim 1 further comprising:  
determining a position of the vulnerable plaque; and  
treating the vulnerable plaque.

Claim 15 (withdrawn): The method of claim 14 wherein the position of the vulnerable plaque is determined by a radiopaque marker on the guide member.

Claim 16 (withdrawn): The method of claim 14 wherein the position of the vulnerable plaque is determined by a radio frequency coil attached to the guide member.

Claim 17 (withdrawn): The method of claim 14 wherein the position of the vulnerable plaque is determined by an ultrasonic marker transducer coupled to the guide member.

Claim 18 (original): A system for determining vulnerable plaque in a cardiovascular lumen, comprising:  
means for inserting a guide member into the cardiovascular lumen, the guide member including a temperature sensor and a distance sensor;  
means for measuring a cardiovascular wall temperature with the temperature sensor;  
means for determining a distance from the temperature sensor to the cardiovascular wall with the distance sensor;  
means for adjusting the cardiovascular wall temperature measurement based on the distance determination; and  
means for determining the vulnerable plaque based on the adjusted cardiovascular wall temperature measurement.

Claim 19 (original): The system of claim 18 further comprising:  
means for determining a baseline temperature of the cardiovascular lumen wall based on a plurality of adjusted cardiovascular wall temperature measurements;

means for comparing each adjusted cardiovascular wall temperature measurement to the baseline temperature; and

means for determining the vulnerable plaque when the adjusted cardiovascular wall temperature measurement is above the baseline temperature by at least a predetermined threshold.

Claim 20 (original): The system of claim 18 further comprising:

means for measuring a fluid flow rate proximate the temperature sensor and the distance sensor with a flow sensor coupled to the guide member; and

means for adjusting the cardiovascular wall temperature measurement based on the fluid flow rate measurement.

Claim 21 (original): The system of claim 18 further comprising:

means for applying a therapy for the vulnerable plaque.

Claim 22 (original): The system of claim 18 further comprising:

means for determining a position of the vulnerable plaque; and

means for treating the vulnerable plaque.

Claim 23 (withdrawn): An apparatus for determining vulnerable plaque comprising:

a temperature sensor operably coupled to a guide member; and

a distance sensor operably coupled to the guide member proximate the temperature sensor; wherein a measurement of a cardiovascular wall temperature is compensated by a measurement of a cardiovascular wall distance to determine the vulnerable plaque based on the compensated temperature measurement.

Claim 24 (withdrawn): The apparatus of claim 23 further comprising:

a flow sensor operably coupled to the guide member proximate the temperature sensor and the distance sensor; wherein the measurement of the cardiovascular wall temperature is compensated by a measurement of a fluid flow rate.